

**IN THE CLAIMS**

Please **REWRITE** claims 1-21, 30, 31, 34, 37, 41-51, 60-63, 74-76, 79 and 82. For the Examiner's convenience, this Amendment includes the text of all claims under examination, a parenthetical expression for each claim to indicate the status of the claim, and markings to show changes relative to the immediate prior version of each currently amended claim.

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1. (Currently amended) A method to provide an arriving wireless device, which is proximate to a plurality of other wireless devices in a plurality of ad hoc networks, with a network discovery menu to enable the arriving device to selectively join one of the ad hoc networks, comprising:

~~determining that a wireless device is an ad hoc network information provider member of a local ad hoc network;~~

*a* ~~updating a service record in the wireless device which includes a description of a characteristic of the local ad hoc network;~~

~~determining that the wireless device is an arriving device;~~

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

searching for ~~remote~~ other wireless devices by the arriving wireless device ~~when it is an~~

~~arriving device;~~

receiving by the arriving device identification information from a wireless device in the first ad hoc network, identifying the first ad hoc network information provider;

establishing a connection between the arriving device and the first ad hoc network information provider and receiving first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

receiving by the arriving device identification information from a wireless device in the second ad hoc network, identifying the second ad hoc network information provider;

establishing a connection between the arriving device and the second ad hoc network information provider and receiving second service information associated with the second list, describing available services of wireless devices in the second ad hoc network;

~~accessing service records from a plurality of ad hoc network information provider devices in a plurality of remote ad hoc networks, by the wireless device when it is an arriving device;~~  
and

forming and displaying by the arriving wireless device a network discovery menu including a plurality of descriptions of first characteristic[[s]] of the plurality of first ad hoc network[[s]] derived from said accessed service records the first service information and a second characteristic of the second ad hoc network derived from the second service information;  
~~and, by the wireless device when it is an arriving device.~~

selectively joining the arriving wireless device to either the first ad hoc network or the second ad hoc network in response to a user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

2. (Currently amended) The method of claim 1, wherein said searching which further comprises:

selectively searching for ~~remote~~ other devices having a specified class of device characteristic.

3. (Currently amended) The method of claim 1, wherein said searching which further comprises:

selectively searching for ~~remote~~ other devices having a specified service class.

4. (Currently amended) The method of claim 1, wherein said searching which further comprises:

selectively searching for ~~remote~~ other devices having a specified service attribute.

5. (Currently amended) The method of claim 1, which further comprises:

determining received signal ~~characteristics~~ quality of devices in said ~~remote~~ first and second ad hoc networks, by the arriving wireless device ~~when it is an arriving device~~; and

ranking said ~~plurality of descriptions~~ first and second characteristics displayed in said network discovery menu according to said received signal ~~characteristics~~ quality, by the arriving wireless device ~~when it is an arriving device~~.

6. (Currently amended) The method of claim 1, which further comprises:

associating with each of said ~~plurality of descriptions~~ first and second characteristics

displayed in said network discovery menu, corresponding information about accessing each respective ~~remote~~ first and second ad hoc network.

7. (Currently amended) The method of claim 1, wherein said updating step in the first ad hoc network further comprises:

determining that ~~[[the]]~~ a wireless device having updated data is a master device in said ~~local~~ first ad hoc network; and

forwarding ~~[[new]]~~ the updated data to ~~[[an]]~~ the first ad hoc network information provider device in said ~~local~~ first ad hoc network.

8. (Currently amended) The method of claim 1, wherein said updating step in the first ad hoc network further comprises:

determining that ~~[[the]]~~ a wireless device having updated data in the first ad hoc network is not an ad hoc network information provider device ~~in said local ad hoc network~~; and

sending the updated information data to a master device in the ~~local~~ first ad hoc network to be forwarded to ~~[[an]]~~ the first ad hoc network information provider device in the first ad hoc network.

9. (Currently amended) The method of claim 1, which further comprises:

determining that ~~[[the]]~~ a wireless device in the first ad hoc network is not an ad hoc network information provider device ~~in said local ad hoc network~~; and

responding to an inquiry from an arriving wireless device by providing information to access ~~[[an]]~~ the first ad hoc network information provider device in the ~~local~~ first ad hoc

network.

10. (Currently amended) The method of claim 1, which further comprises:

~~displaying the network discovery menu, by the wireless device when it is an arriving device;~~

associating with each of said ~~plurality of descriptions~~ first and second characteristics in said network discovery menu, corresponding information about accessing a master device in each respective ~~remote~~ first and second ad hoc network;

aging a master device corresponding to a selected one of said ~~plurality of descriptions~~ first and second characteristics; and

joining ~~[[the]]~~ a respective ~~remote~~ one of the first and second ad hoc networks ~~[[of]]~~ that includes said paged master device.

11. (Currently amended) A method to provide a network discovery menu to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network discovery menu to enabling the arriving device to selectively join one of the ad hoc networks, comprising:

~~determining that a wireless device is an ad hoc network information provider member of a local ad hoc network;~~

~~updating a service record in the wireless device which includes a description of a characteristic of the local ad hoc network;~~

~~determining that the wireless device is an arriving device;~~

maintaining in a first ad hoc network information provider device in a first ad hoc

network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

a maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

identifying a plurality of remote the first and second ad hoc networks, by the arriving wireless device when it is an arriving device;

establishing a connection between the arriving device and the first ad hoc network information provider and receiving first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

establishing a connection between the arriving device and the second ad hoc network information provider and receiving second service information associated with the second list, describing available services of wireless devices in the second ad hoc network;

~~accessing service records from a plurality of ad hoc network information provider devices in a plurality of remote ad hoc networks, by the wireless device when it is an arriving device;~~  
~~and~~

forming and displaying by the arriving wireless device a network discovery menu including a plurality of descriptions of first characteristic[[s]] of the plurality of first ad hoc network[[s]] derived from said accessed service records the first service information and a second characteristic of the second ad hoc network derived from the second service information;  
~~and, by the wireless device when it is an arriving device.~~

selectively joining the arriving wireless device to either the first ad hoc network or the second ad hoc network in response to a user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

12. (Currently amended) The method of claim 11, wherein said searching which further comprises:

selectively searching for ~~remote~~ other devices having a specified class of device characteristic.

13. (Currently amended) The method of claim 11, wherein said searching which further comprises:

selectively searching for ~~remote~~ other devices having a specified service class.

14. (Currently amended) The method of claim 11, wherein said searching which further comprises:

selectively searching for ~~remote~~ other devices having a specified service attribute.

15. (Currently amended) The method of claim 11, which further comprises:

determining received signal ~~characteristics~~ quality of devices in said ~~remote~~ first and second ad hoc networks, by the arriving wireless device ~~when it is an arriving device~~; and

ranking said ~~plurality of descriptions~~ first and second characteristics displayed in said network discovery menu according to said received signal ~~characteristics~~ quality, by the arriving wireless device ~~when it is an arriving device~~.

16. (Currently amended) The method of claim 11, which further comprises:

associating with each of said ~~plurality of descriptions~~ first and second characteristics  
displayed in said network discovery menu, corresponding information about accessing each  
respective ~~remote~~ first and second ad hoc network.

17. (Currently amended) The method of claim 11, wherein said updating step in the first  
ad hoc network further comprises:

determining that ~~[[the]]~~ a wireless device having updated data is a master device in said  
~~local~~ first ad hoc network; and

forwarding ~~[[new]]~~ the updated data to ~~[[an]]~~ the first ad hoc network information  
provider device in said ~~local~~ first ad hoc network.

18. (Currently amended) The method of claim 11, wherein said updating step in the first  
ad hoc network further comprises:

determining that ~~[[the]]~~ a wireless device having updated data in the first ad hoc network  
is not an ad hoc network information provider device ~~in said local ad hoc network~~; and

sending the updated information data to a master device in the ~~local~~ first ad hoc network  
to be forwarded to ~~[[an]]~~ the first ad hoc network information provider device in the first ad hoc  
network.

19. (Currently amended) The method of claim 11, which further comprises:

determining that ~~[[the]]~~ a wireless device in the first ad hoc network is not an ad hoc



network information provider device ~~in said local ad hoc network~~; and

responding to an inquiry from an arriving wireless device by providing information to access ~~[[an]]~~ the first ad hoc network information provider device in the ~~local~~ first ad hoc network.

20. (Currently amended) The method of claim 11, which further comprises:

~~displaying the network discovery menu, by the wireless device when it is an arriving device;~~

associating with each of said ~~plurality of descriptions~~ first and second characteristics in said network discovery menu, corresponding information about accessing a master device in each respective ~~remote~~ first and second ad hoc network;

paging a master device corresponding to a selected one of said ~~plurality of descriptions~~ first and second characteristics; and

joining ~~[[the]]~~ a respective ~~remote~~ one of the first and second ad hoc networks ~~[[of]]~~ that includes said paged master device.

21. (Currently amended) A method to provide network information to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network information enabling the arriving device to selectively join one of the ad hoc networks, comprising:

~~providing an ad hoc network information provider wireless device in at least one of the plurality of ad hoc networks;~~

~~storing in the ad hoc network information provider, records that characterize the ad hoc~~

~~network of which it is a member; and~~

~~sending said records from the ad hoc network information provider to an arriving  
wireless device.~~

a maintaining in a first ad hoc network information provider device in a first ad hoc  
network, a first list of available services of wireless devices in the first ad hoc network and  
updating the first list based on information received from the wireless devices in the first ad hoc  
network;

maintaining in a second ad hoc network information provider device in a second ad hoc  
network, a second list of available services of wireless devices in the second ad hoc network and  
updating the second list based on information received from the wireless devices in the second  
ad hoc network;

identifying the first ad hoc network, by the arriving wireless device;

establishing a connection between the arriving device and the first ad hoc network  
information provider and receiving first service information associated with the first list,  
describing available services of wireless devices in the first ad hoc network;

identifying the second ad hoc network, by the arriving wireless device;

establishing a connection between the arriving device and the second ad hoc network  
information provider and receiving second service information associated with the second list,  
describing available services of wireless devices in the second ad hoc network;

forming by the arriving wireless device a network discovery menu including a first  
characteristic of the first ad hoc network derived from the first service information and a second  
characteristic of the second ad hoc network derived from the second service information;

sorting and displaying by the arriving wireless device said first and second characteristics

in said network discovery menu according to predefined types of characteristics of interest to a user; and

selectively joining the arriving wireless device to either the first ad hoc network or the second ad hoc network in response to the user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

a 22. (Original) The method of claim 21, wherein the wireless devices use a IEEE 802.11 Wireless LAN standard.

23. (Original) The method of claim 21, wherein the wireless devices use the Bluetooth standard.

24. (Original) The method of claim 21, wherein the wireless devices use the Infrared Data Association (IrDA) standard.

25. (Original) The method of claim 21, wherein the wireless devices use the Digital Enhanced Cordless Telecommunications (DECT) standard.

26. (Original) The method of claim 21, wherein the wireless devices use the Shared Wireless Access Protocol (SWAP) standard.

27. (Original) The method of claim 21, wherein the wireless devices use the IEEE 802.15 Wireless Personal Area Network (WPAN) standard.

28. (Original) The method of claim 21, wherein the wireless devices use the High Performance Radio Local Area Network (HIPERLAN) standard.

29. (Original) The method of claim 21, wherein the wireless devices use the Multimedia Mobile Access Communication (MMAC) Systems standard.

30. (Currently amended) A method to provide network information to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network information enabling the arriving device to selectively join one of the ad hoc networks, comprising:

~~providing an ad hoc network information provider wireless device in at least one of the plurality of ad hoc networks;~~

~~storing in the ad hoc network information provider, records that characterize the ad hoc network of which it is a member;~~

~~updating said records in the ad hoc network information provider by receiving updated information from other wireless devices in the ad hoc network of which it is a member; and~~

~~sending said records from the ad hoc network information provider to an arriving wireless device.~~

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

identifying the first ad hoc network, by the arriving wireless device;

establishing a connection between the arriving device and the first ad hoc network information provider and receiving first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

measuring a first received signal quality from the first ad hoc network, by the arriving wireless device;

identifying the second ad hoc network, by the arriving wireless device;

establishing a connection between the arriving device and the second ad hoc network information provider and receiving second service information associated with the second list, describing available services of wireless devices in the second ad hoc network;

measuring a second received signal quality from the second ad hoc network, by the arriving wireless device;

forming by the arriving wireless device a network discovery menu including a first characteristic of the first ad hoc network derived from the first service information and a second characteristic of the second ad hoc network derived from the second service information;

sorting and displaying by the arriving wireless device said first and second characteristics in said network discovery menu according to the respective first and second received signal qualities; and

selectively joining the arriving wireless device to either the first ad hoc network or the

second ad hoc network in response to the user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

31. (Currently amended) A method to provide an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, with a network discovery menu to enable the arriving device to selectively join one of the ad hoc networks, comprising:

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

sending with an arriving wireless device, inquiry signals to ~~remote~~ other wireless devices;

receiving with the arriving wireless device, an address[[es]] of ~~a plurality of the first~~ ad hoc network information provider device[[s]] in ~~a plurality of remote the first~~ ad hoc network[[s]];

accessing with the arriving wireless device, service records from the ~~plurality of the first~~ ad hoc network information provider device[[s]] in ~~a plurality of remote the first~~ ad hoc network[[s]];

determining with the arriving wireless device, received signal ~~characteristics~~ quality

value of devices in said ~~remote~~ first ad hoc network[[s]];

receiving with the arriving wireless device, an address of the second ad hoc network  
information provider device in the second ad hoc network;

a | accessing with the arriving wireless device, service records from the second ad hoc  
network information provider device in the second ad hoc network;

determining with the arriving wireless device, received signal quality value of devices in  
said second ad hoc network;

ranking with the arriving wireless device, information from said service records  
according to said signal ~~characteristics~~ quality values; and

forming with the arriving wireless device, a network discovery menu including  
information from said service records, ranked according to said signal ~~characteristics~~ quality  
values.

32. (Original) The method of claim 31, wherein said wireless devices are embodied in the  
Bluetooth Standard.

33. (Original) The method of claim 31, wherein said wireless devices are embodied in the  
IEEE 802.11 Wireless LAN Standard.

34. (Currently amended) A method to provide an arriving wireless device which is  
proximate to a plurality other wireless devices in a plurality of ad hoc networks, with a network  
discovery menu to enable the arriving device to selectively join one of the ad hoc networks,  
comprising:

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

receiving with an arriving wireless device, beacon signals from ~~a plurality of~~ the first ad hoc network[[s]], including an address[[es]] of ~~respective the first~~ the first ad hoc network information provider[[s]] ~~in said networks;~~

accessing with the arriving wireless device, service records from the ~~plurality of first~~ ad hoc network information provider device[[s]] in a plurality of remote ad hoc networks;

determining with the arriving wireless device, a received signal characteristics quality value of devices in said ~~remote~~ first ad hoc network[[s]];

receiving with the arriving wireless device, beacon signals from the second ad hoc network, including an address of the second ad hoc network information provider;

accessing with the arriving wireless device, service records from the second ad hoc network information provider device;

determining with the arriving wireless device, a received signal quality value of devices in said second ad hoc network;

ranking with the arriving wireless device, information from said service records according to said signal ~~characteristics~~ quality values; and



forming with the arriving wireless device, a network discovery menu including information from said service records, ranked according to said signal ~~characteristics~~ quality values.

35. (Original) The method of claim 34, wherein said wireless devices are embodied in the IEEE 802.11 Wireless LAN Standard.

36. (Original) The method of claim 34, wherein said wireless devices are embodied in the HIPERLAN Type 2 Wireless LAN Standard.

37. (Currently amended) A method to provide an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, with a network discovery menu to enable the arriving device to selectively join one of the ad hoc networks, comprising:

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

providing in an arriving wireless device, a default address for ~~at least~~ the first one ad hoc

network information provider wireless device[[s]] in ~~a respective one of a plurality of~~ the first ad hoc network[[s]];

accessing with the arriving wireless device, service records from the ~~at least one first~~ ad hoc network information provider device, using said default address;

determining with the arriving wireless device, a received signal characteristics quality value of devices in said ~~plurality of first~~ ad hoc network[[s]];

accessing with the arriving wireless device, service records from the second ad hoc network information provider device;

determining with the arriving wireless device, a received signal quality value of devices in said second ad hoc network;

ranking with the arriving wireless device, information from said service records according to said signal ~~characteristics~~ quality values; and

forming with the arriving wireless device, a network discovery menu including information from said service records, ranked according to said signal ~~characteristics~~ quality values.

38. (Original) The method of claim 37, wherein said wireless devices are embodied in the Bluetooth Standard.

39. (Original) The method of claim 37, wherein said wireless devices are embodied in the IEEE 802.11 Wireless LAN Standard.

40. (Original) The method of claim 37, wherein said wireless devices are embodied in the

HIPERLAN Type 2 Wireless LAN Standard.

a1 41. (Currently amended) A system to provide a network discovery menu to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network discovery menu enabling the arriving device to selectively join one of the ad hoc networks, comprising:

~~a processor for determining that a wireless device is an ad hoc network information provider member of a local ad hoc network;~~

~~a memory coupled to the processor, for updating a service record in the wireless device which includes a description of a characteristic of the local ad hoc network;~~

~~said processor determining that the wireless device is an arriving device, searching for remote devices by the wireless device when it is an arriving device, and accessing service records from a plurality of ad hoc network information provider devices in a plurality of remote ad hoc networks; and~~

~~an interface for forming a network discovery menu including a plurality of descriptions of characteristics of the plurality of ad hoc networks derived from said accessed service records.~~

a first ad hoc network information provider device in a first ad hoc network, maintaining a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

a second ad hoc network information provider device in a second ad hoc network, maintaining a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

an arriving wireless device including a processor, a memory storing program instructions executable by the processor, a radio, and a user interface;

said arriving wireless device being programmed to establish a connection between the arriving device and the first ad hoc network information provider to receive first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

said arriving wireless device being programmed to establish a connection between the arriving device and the second ad hoc network information provider to receive second service information associated with the second list, describing available services of wireless devices in the second ad hoc network;

said arriving wireless device being programmed to form and display a network discovery menu including a first characteristic of the first ad hoc network derived from the first service information and a second characteristic of the second ad hoc network derived from the second service information; and

said arriving wireless device being programmed to selectively join the arriving wireless device to either the first ad hoc network or the second ad hoc network in response to a user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

42. (Currently amended) The system of claim 41, which further comprises:

said processor selectively searching for ~~remote~~ other devices having a specified class of device characteristic.

43. (Currently amended) The system of claim 41, which further comprises:  
  
said processor selectively searching for ~~remote~~ other devices having a specified service class.

44. (Currently amended) The system of claim 41, which further comprises:  
  
said processor selectively searching for ~~remote~~ other devices having a specified service attribute.

45. (Currently amended) The system of claim 41, which further comprises:  
  
said processor determining received signal ~~characteristics~~ quality of devices in said ~~remote~~ first and second ad hoc networks and ranking said ~~plurality of descriptions~~ first and second characteristics displayed in said network discovery menu according to said received signal characteristics quality.

Al 46. (Currently amended) The system of claim 41, which further comprises:  
  
said interface associating with each of said ~~plurality of descriptions~~ first and second characteristics displayed in said network discovery menu, corresponding information about accessing each respective ~~remote~~ first and second ad hoc network.

47. (Currently amended) The system of claim 41, which further comprises:  
  
said processor determining that ~~[[the]]~~ a wireless device having updated data is a master device in said ~~local~~ first ad hoc network and forwarding ~~[[new]]~~ the updated data to ~~[[an]]~~ the first ad hoc network information provider device in said ~~local~~ first ad hoc network.

48. (Currently amended) The system of claim 41, which further comprises:

said processor determining that ~~[[the]]~~ a wireless device having updated data in the first ad hoc network is not an ad hoc network information provider device ~~in said local ad hoc network~~ and sending the updated information data to a master device in the ~~local~~ first ad hoc network to be forwarded to ~~[[an]]~~ the first ad hoc network information provider device in the first ad hoc network.

49. (Currently amended) The system of claim 41, which further comprises:

said processor determining that ~~[[the]]~~ a wireless device in the first ad hoc network is not an ad hoc network information provider device ~~in said local ad hoc network~~ and responding to an inquiry from an arriving wireless device by providing information to access ~~[[an]]~~ the first ad hoc network information provider device in the ~~local~~ first ad hoc network.

50. (Currently amended) The system of claim 41, which further comprises:

said interface displaying the network discovery menu~~[[,]]~~ ~~by the wireless device when it is an arriving device~~ and associating with each of said ~~plurality of descriptions~~ first and second characteristics in said network discovery menu, corresponding information about accessing a master device in each respective ~~remote~~ first and second ad hoc network; and

said processor paging a master device corresponding to a selected one of said ~~plurality of descriptions~~ first and second characteristics.

51. (Currently amended) A system to provide network information to an arriving wireless

device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network information enabling the arriving device to selectively join one of the ad hoc networks, comprising:

~~a processor in an ad hoc network information provider wireless device in at least one of the plurality of ad hoc networks;~~

~~a memory coupled to the processor, for storing in the ad hoc network information provider, records that characterize the ad hoc network of which it is a member; and~~

~~a radio coupled to the processor, for sending said records from the ad hoc network information provider to an arriving wireless device.~~

a first ad hoc network information provider device in a first ad hoc network, maintaining a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

a second ad hoc network information provider device in a second ad hoc network, maintaining a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

an arriving wireless device including a processor, a memory storing program instructions executable by the processor, a radio, and a user interface;

said arriving wireless device being programmed to establish a connection between the arriving device and the first ad hoc network information provider to receive first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

said arriving wireless device being programmed to establish a connection between the

arriving device and the second ad hoc network information provider to receive second service information associated with the second list, describing available services of wireless devices in the second ad hoc network;

a said arriving wireless device being programmed to form a network discovery menu including a first characteristic of the first ad hoc network derived from the first service information and a second characteristic of the second ad hoc network derived from the second service information;

said arriving wireless device being programmed to sort and display said first and second characteristics in said network discovery menu according to predefined types of characteristics of interest to a user; and

said arriving wireless device being programmed to selectively join the arriving wireless device to either the first ad hoc network or the second ad hoc network in response to a user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

52. (Original) The system of claim 51, wherein the wireless devices use a IEEE 802.11 Wireless LAN standard.

53. (Original) The system of claim 51, wherein the wireless devices use the Japanese 3rd Generation (3G) wireless standard.

54. (Original) The system of claim 51, wherein the wireless devices use the Infrared Data Association (IrDA) standard.



55. (Original) The system of claim 51, wherein the wireless devices use the Digital Enhanced Cordless Telecommunications (DECT) standard.

56. (Original) The system of claim 51, wherein the wireless devices use the Shared Wireless Access Protocol (SWAP) standard.

57. (Original) The system of claim 51, wherein the wireless devices use the IEEE 802.15 Wireless Personal Area Network (WPAN) standard.

58. (Original) The system of claim 51, wherein the wireless devices use the High Performance Radio Local Area Network (HIPERLAN) standard.

59. (Original) The system of claim 51, wherein the wireless devices use the Multimedia Mobile Access Communication (MMAC) Systems standard.

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60. (Currently amended) A system to provide network information to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network information enabling the arriving device to selectively join one of the ad hoc networks, comprising:

~~a processor in an ad hoc network information provider wireless device in at least one of the plurality of ad hoc networks;~~

~~a memory coupled to the processor, for storing in the ad hoc network information provider, records that characterize the ad hoc network of which it is a member;~~

~~said memory updating said records in the ad hoc network information provider by receiving updated information from other wireless devices in the ad hoc network of which it is a member; and~~

~~a radio coupled to the processor, for sending said records from the ad hoc network information provider to an arriving wireless device.~~

a first ad hoc network information provider device in a first ad hoc network, maintaining a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

a second ad hoc network information provider device in a second ad hoc network, maintaining a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

an arriving wireless device including a processor, a memory storing program instructions executable by the processor, a radio, and a user interface;

said arriving wireless device being programmed to establish a connection between the arriving device and the first ad hoc network information provider to receive first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

said arriving wireless device being programmed to establish a connection between the arriving device and the second ad hoc network information provider to receive second service information associated with the second list, describing available services of wireless devices in

the second ad hoc network;

said arriving wireless device being programmed to determine received signal quality values of devices in said first and second ad hoc networks;

said arriving wireless device being programmed to form a network discovery menu including a first characteristic of the first ad hoc network derived from the first service information and a second characteristic of the second ad hoc network derived from the second service information;

said arriving wireless device being programmed to rank the first and second characteristics in the network discovery menu according to said signal quality values; and

said arriving wireless device being programmed to selectively join the arriving wireless device to either the first ad hoc network or the second ad hoc network in response to a user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

61. (Currently amended) A computer program product to provide a network discovery menu to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network discovery menu to enabling the arriving device to selectively join one of the ad hoc networks, comprising:

a computer readable medium;

~~program code in said computer readable medium for determining that a wireless device is an ad hoc network information provider member of a local ad hoc network;~~

~~program code in said computer readable medium for updating a service record in the wireless device which includes a description of a characteristic of the local ad hoc network;~~

~~program code in said computer readable medium for determining that the wireless device is an arriving device;~~

~~program code in said computer readable medium for searching for remote devices by the wireless device when it is an arriving device;~~

~~program code in said computer readable medium for accessing service records from a plurality of ad hoc network information provider devices in a plurality of remote ad hoc networks, by the wireless device when it is an arriving device; and~~

~~program code in said computer readable medium for forming a network discovery menu including a plurality of descriptions of characteristics of the plurality of ad hoc networks derived from said accessed service records, by the wireless device when it is an arriving device.~~

a | program code in said computer readable medium for maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

program code in said computer readable medium for maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

program code in said computer readable medium for searching for other wireless devices by the arriving wireless device ;

program code in said computer readable medium for receiving by the arriving device identification information from a wireless device in the first ad hoc network, identifying the first ad hoc network information provider;

program code in said computer readable medium for establishing a connection between the arriving device and the first ad hoc network information provider and receiving first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

program code in said computer readable medium for receiving by the arriving device identification information from a wireless device in the second ad hoc network, identifying the second ad hoc network information provider;

a1 program code in said computer readable medium for establishing a connection between the arriving device and the second ad hoc network information provider and receiving second service information associated with the second list, describing available services of wireless devices in the second ad hoc network;

program code in said computer readable medium for forming and displaying by the arriving wireless device a network discovery menu including a first characteristic of the first ad hoc network derived from the first service information and a second characteristic of the second ad hoc network derived from the second service information; and

program code in said computer readable medium for selectively joining the arriving wireless device to either the first ad hoc network or the second ad hoc network in response to a user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

62. (Currently amended) A computer program product to provide a network discovery menu to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network discovery menu to enabling the arriving device to

selectively join one of the ad hoc networks, comprising:

a computer readable medium;

~~program code in said computer readable medium, for providing ad hoc network information provider functions in a wireless device in at least one of the plurality of ad hoc networks;~~

~~program code in said computer readable medium, for storing in the wireless device, records that characterize the ad hoc network of which it is a member;~~

~~program code in said computer readable medium, for updating said records in the wireless device by receiving updated information from other wireless devices in the ad hoc network of which it is a member; and~~

~~program code in said computer readable medium for sending said records from the wireless device to an arriving wireless device.~~

program code in said computer readable medium for maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

a | program code in said computer readable medium for maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

program code in said computer readable medium for identifying the first ad hoc network, by the arriving wireless device;

program code in said computer readable medium for establishing a connection between

the arriving device and the first ad hoc network information provider and receiving first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

program code in said computer readable medium for identifying the second ad hoc network, by the arriving wireless device;

program code in said computer readable medium for establishing a connection between the arriving device and the second ad hoc network information provider and receiving second service information associated with the second list, describing available services of wireless devices in the second ad hoc network;

program code in said computer readable medium for forming by the arriving wireless device a network discovery menu including a first characteristic of the first ad hoc network derived from the first service information and a second characteristic of the second ad hoc network derived from the second service information;

program code in said computer readable medium for sorting and displaying by the arriving wireless device said first and second characteristics in said network discovery menu according to predefined types of characteristics of interest to a user; and

program code in said computer readable medium for selectively joining the arriving wireless device to either the first ad hoc network or the second ad hoc network in response to the user's respective selection of either the first characteristic or the second characteristic displayed on the network discovery menu.

63. (Currently amended) A method to provide an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, with a network

discovery menu to enable the arriving device to selectively join one of the ad hoc networks, comprising:

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

searching with an arriving wireless device, for ~~remote~~ other wireless devices;

accessing with the arriving wireless device, service records from the ~~plurality of the first~~ ad hoc network information provider device[[s]] in a ~~plurality of remote~~ the first ad hoc network[[s]];

determining with the arriving wireless device, received signal ~~characteristics~~ quality value of devices in said ~~remote~~ first ad hoc network[[s]];

accessing with the arriving wireless device, service records from the second ad hoc network information provider device in the second ad hoc network;

determining with the arriving wireless device, received signal quality value of devices in said second ad hoc network;

ranking with the arriving wireless device, information from said service records according to said signal ~~characteristics~~ quality values; and

forming with the arriving wireless device, a network discovery menu including



information from said service records, ranked according to said signal ~~characteristics~~ quality values.

64. (Original) The method of claim 63, wherein said ranking is by Bit Error Rate accumulated over time.

a) 65. (Original) The method of claim 63, wherein said ranking is by Packet Error Rate accumulated over time.

66. (Original) The method of claim 63, wherein said ranking is by received signal strength.

67. (Original) The method of claim 63, wherein said ranking is by link quality measurements.

68. (Original) The method of claim 63, wherein said ranking is by continuous-wave interference.

69. (Original) The method of claim 63, wherein said ranking is by co-channel interference.

70. (Original) The method of claim 63, wherein said ranking is by clear channel assessment.

71. (Original) The method of claim 63, wherein said ranking is by collisions per unit time.

72. (Original) The method of claim 63, wherein said ranking is by retry counts.

73. (Original) The method of claim 63, wherein said ranking is by, frames canceled per unit time.

a | 74. (Currently amended) A method to provide an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, with a network discovery menu to enable the arriving device to selectively join one of the ad hoc networks, comprising:

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

searching for ~~remote~~ other wireless devices with an arriving wireless device;

attempting by the arriving wireless device to access a service record from a found device

to determine if the found device has information about an ad hoc network information provider device;

if the service record indicates that the found device has information about the first ad hoc network information provider device, then establishing a connection between the arriving device and the first ad hoc network information provider and receiving first service information associated with the first list, describing available services of wireless devices in the first ad hoc network;

if the service record indicates that the found device has information about the second ad hoc network information provider device, then establishing a connection between the arriving device and the second ad hoc network information provider and receiving second service information associated with the second list, describing available services of wireless devices in the second ad hoc network; and

if the service record indicates that the found device ~~receiving an indication from the found device that it~~ has no information about an ad hoc network information provider device[[:]] and , then listing by the arriving wireless device the found device in a network discovery menu.

75. (Currently amended) A method to provide an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, with a network discovery menu to enable the arriving device to selectively join one of the ad hoc networks, comprising:

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc

network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

searching for ~~remote~~ other wireless devices with an arriving wireless device;

accessing with the arriving wireless device, service records from the ~~plurality of the first~~ ad hoc network information provider device[[s]] in a ~~plurality of remote~~ the first ad hoc network[[s]];

determining with the arriving wireless device, received signal ~~characteristics~~ quality value of devices in said ~~remote~~ first ad hoc network[[s]];

accessing with the arriving wireless device, service records from the second ad hoc network information provider device in the second ad hoc network;

determining with the arriving wireless device, received signal quality value of devices in said second ad hoc network;

ranking with the arriving wireless device, information from said service records according to said signal ~~characteristics~~ quality values;

forming with the arriving wireless device, a network discovery menu including information from said service records, ranked according to said signal ~~characteristics~~ quality values;

attempting to access with the arriving wireless device, a service record from a found device to determine if the found device has information about an ad hoc network information provider device;

receiving with the arriving wireless device, an indication from the found device that it has no information about an ad hoc network information provider device; and

listing the found device in said network discovery menu.

76. (Currently amended) A method to provide network information to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network information enabling the arriving device to selectively join one of the ad hoc networks, comprising:

a/ maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

~~providing an ad hoc network information provider wireless device in at least one of the plurality of ad hoc networks;~~

~~storing in the ad hoc network information provider, records that characterize the ad hoc network of which it is a member;~~

answering by the first ad hoc network information provider inquiry signals from an arriving wireless device, including an address of the first ad hoc network information provider;

receiving by the first ad hoc network information provider a request from the arriving

wireless device for said ~~records~~ first service information associated with the first list; and

sending said ~~records~~ first service information from the first ad hoc network information provider to the arriving wireless device to enable the arriving wireless device to form a network discovery menu including ~~information from said service records~~ first service information; [.]

a/ answering by the second ad hoc network information provider inquiry signals from the arriving wireless device, including an address of the second ad hoc network information provider;

receiving by the second ad hoc network information provider a request from the arriving wireless device for said second service information associated with the second list; and

sending said second service information from the second ad hoc network information provider to the arriving wireless device to enable the arriving wireless device to add to the network discovery menu said second service information.

77. (Original) The method of claim 76, wherein said wireless devices are embodied in the Bluetooth Standard.

78. (Original) The method of claim 76, wherein said wireless devices are embodied in the IEEE 802.11 Wireless LAN Standard.

79. (Currently amended) A method to provide network information to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network information enabling the arriving device to selectively join one of the ad hoc networks, comprising:

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network;

Al maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network;

~~providing an ad hoc network information provider wireless device in at least one of the plurality of ad hoc networks;~~

~~storing in the ad hoc network information provider, records that characterize the ad hoc network of which it is a member;~~

sending a beacon signal from the first ad hoc network, including an address of the first ad hoc network information provider;

receiving a request from an arriving wireless device for first service information associated with the first list; said records; and

sending said ~~records~~ first service information from the first ad hoc network information provider to the arriving wireless device to enable the arriving wireless device to form a network discovery menu including the first service information; from said service records[.].

sending a beacon signal from the second ad hoc network, including an address of the second ad hoc network information provider;

receiving a request from an arriving wireless device for second service information

associated with the second list; and

sending said second service information from the second ad hoc network information provider to the arriving wireless device to enable the arriving wireless device to add the second service information to the network discovery menu.

80. (Original) The method of claim 79, wherein said wireless devices are embodied in the IEEE 802.11 Wireless LAN Standard.

81. (Original) The method of claim 79, wherein said wireless devices are embodied in the HIPERLAN Type 2 Wireless LAN Standard.

al 82. (Currently amended) A method to provide network information to an arriving wireless device which is proximate to a plurality other wireless devices in a plurality of ad hoc networks, the network information enabling the arriving device to selectively join one of the ad hoc networks, comprising:

maintaining in a first ad hoc network information provider device in a first ad hoc network, a first list of available services of wireless devices in the first ad hoc network and updating the first list based on information received from the wireless devices in the first ad hoc network, said first ad hoc network information provider having a first default address;

maintaining in a second ad hoc network information provider device in a second ad hoc network, a second list of available services of wireless devices in the second ad hoc network and updating the second list based on information received from the wireless devices in the second ad hoc network, said second ad hoc network information provider having a second default



address;

~~providing a default address for an ad hoc network information provider wireless device in  
at least one of the plurality of ad hoc networks;~~

~~storing in the ad hoc network information provider, records that characterize the ad hoc  
network of which it is a member;~~

a/ receiving a request for ~~said records~~ first service information associated with the first list,  
addressed to said first default address from an arriving wireless device; and

sending said first service information from the first ad hoc network information provider  
to the arriving wireless device to enable the arriving wireless device to form a network discovery  
menu including the first service information; ~~from said service records[[]]~~

receiving a request for second service information associated with the second list,  
addressed to said second default address from an arriving wireless device; and

sending said second service information from the second ad hoc network information  
provider to the arriving wireless device to enable the arriving wireless device to add to the  
network discovery menu the second service information.

83. (Original) The method of claim 82, wherein said wireless devices are embodied in the  
Bluetooth Standard.

84. (Original) The method of claim 82, wherein said wireless devices are embodied in the  
IEEE 802.11 Wireless LAN Standard.

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85. (Original) The method of claim 82, wherein said wireless devices are embodied in the  
HIPERLAN Type 2 Wireless LAN Standard.

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